AMENDMENTS TO THE CLAIMS

1. (Currently amended) A home automation communication system using advanced asymmetric digital subscriber line (ADSL), comprising:

a home automation service communication server for providing a home automation service (HAS);

a home automation service channel means included in an ADSL terminal for transmitting/receiving a home automation service control signal and data with home automation devices in wired or wireless communication mode using ADSL low rate signals; and

a home automation multiplexing means included in an ADSL accessing means for multiplexing home automation service control signal and data between the home automation service communication server and the home automation service channel means.

2. (Currently amended) The system as recited in claim 1, wherein the home automation service channel means includes:

a wireless home automation service means for performing functions of a wireless home network and a wireless home automation interface;

a wired home automation service means for performing functions of a wired home network and a wired home automation interface;

a home automation service [[(HAS)]] framer connected to a low rate processing unit of ADSL termination unit – remote (ATU-R) for generating data having a [[HAS]] home automation service message format based on message types and information parameters and transferring the data to the low rate processing unit and extracting a message type and information parameter from ~~the received HAS~~ data having home automation service message format received from the low rate processing unit; and

a [[HAS]] home automation service agent for receiving the messages and information parameter from the [[HAS]] home automation service framer, performing a home

service process and transferring the home automation service control signal and data to the wireless [[HAS circuit]] home automation service means and the wired [[circuit HAS]] home automation service means.

3. (Currently amended) The system as recited in claim 1, wherein the home automation service multiplexing means includes:

a low rate frame accessing means connected to a low rate processing unit of ADSL termination unit – central (ATU-C) for receiving and transferring low rate data; and

a home automation service processing means connected to the home automation service communication [[means]] server for performing home automation service process and transmitting/receiving home automation service control signal and data with the home automation service channel means through the low rate frame accessing means.

4. (Previously Presented) The system as recited in claim 1, wherein the advanced ADSL includes a dual link discrete multitone (DLDMT) method.

5. (Previously Presented) The system as recited in claim 1, wherein the advanced ADSL includes an asynchronous transfer mode (ATM).

6. (Currently amended) The system as recited in claim 1, wherein home automation protocol message used for transferring information [[to]] for the home automation service, includes:

flag fields which are first and last octets for showing start and end of V5 envelope function (V5EF) frame;

V5 data link address fields which are second/third octets and third/forth octets, wherein the second/third octets and third/forth octets are identically copied;

a protocol identifier field which is an eighth octet;

control fields which are sixth and seventh octets;

frame check sequence (FCS) fields in which n-1st and n-2nd octets are generated based on a link access procedure for [[the]] Integrated Services Digital Network (ISDN) D channel (Link Access Protocol D-channel (LAPD)) protocol standard;

[[HAS]] home automation service reference number fields which are ninth and tenth octets, wherein the [[HAS]] home automation service reference number field is effective until a process of the message is completed;

a message type field for allocating message identification numbers for requesting and responding to control a home automation service, searching home automation data, transferring data, reporting status of service, automatic metering, home radio and home data service; and

information parameter fields for storing parameters for processing messages and data for application service.

7. (Currently Amended) The system as recited in claim 6, wherein the information parameter fields include:

an information parameter identification (ID) for identifying home automation service information among other V5EF information parameters;

a length of information parameter field for showing a size of [[HAS]] home automation service information parameter in octet;

a user port ID field for identifying ADSL terminal, wherein a size of the user port ID field is 4 octets and the user port ID field is corresponding to a phone number of a subscriber; and

a status field for showing status of port that is identified by the user port ID and operation information, e.g., calling, disabled, not using, call processing, testing and allocating/clearing of time slot for 64Kbps clear channel.

8. (Currently amended) A home automation communication system using advanced asymmetric digital subscriber line (ADSL), comprising:

a home automation service communication server to provide a home automation service (HAS);

a home automation service channel module included in an ADSL terminal to transmit and receive a home automation service control signal and data with home automation devices in a wired or wireless communication mode using low rate signals; and

a home automation multiplexer included in an ADSL accessing unit to multiplex the home automation service control and data between the home automation service communication server and the home automation service channel module.

9. (Currently amended) The system as recited in claim 8, wherein the home automation service channel module includes:

a wireless home automation service circuit to perform functions of a wireless home network and a wireless home automation interface;

a wired home automation service circuit to perform functions of a wired home network and a wired home automation interface;

a home automation service [[(HAS)]] framer connected to a low rate processing unit of an ADSL termination unit – remote (ATU-R) to generate data having a [[HAS]] home automation service message format based on message types and information parameters and to transfer the data to the low rate processing unit and extract a message type and information parameter from ~~the received HAS~~ data having home automation service message format from received the low rate processing unit; and

a [[HAS]] home automation service agent to receive messages and information parameter from the [[HAS]] home automation service framer, to perform a home service procedure, and to transfer the home automation service control signal and data to the wireless HAS circuit and the wired [[HAS]] home automation service circuit.

10. (Currently amended) The system as recited in claim 8, wherein the home automation service multiplexer includes:

a low rate frame accessing unit connected to a low rate processing unit of an ADSL termination unit – central (ATU-C) to receive and transfer low rate data; and

a home automation service processing unit connected to the home automation service communication server to perform a home automation service procedure and to transmit and receive the home automation service control signal and data with the home automation service channel module through the low rate frame accessing unit.

11. (Previously Presented) The system as recited in claims 8, wherein the advanced ADSL includes a dual link discrete multi-tone (DLDMT) method.

12. (Previously Presented) The system as recited in any one of claims 8, wherein the advanced ADSL includes an asynchronous transfer mode (ATM).

13. (Currently Amended) The system as recited in claim 8, wherein a home automation protocol message used to transfer information to the home automation service channel module, includes:

flag fields which are first and last octets to show a start and an end of a V5 envelope function (V5EF) frame;

V5 data link address fields which are second/third octets and third/forth octets, wherein the second/third octets and third/forth octets are identically copied;

a protocol identifier field which is an eighth octet;

control fields which are sixth and seventh octets;

frame check sequence (FCS) fields in which n-1st and n-2nd octets are generated based on a link access procedure for the Integrated Services Digital Network (ISDN) D channel (Link Access Protocol Channel-D (LAPD)) protocol standard;

[[HAS]] home automation service reference number fields which are ninth and tenth octets, wherein the [[HAS]] home automation service reference number field is effective until a process of the message is completed;

a message type field to allocate message identification numbers to request and respond to control a home automation service, to search home automation data, to transfer data, to report status of service, and for automatic metering, home radio, and home data service; and

information parameter fields to store parameters to process messages and data for application service.

14. (Previously Presented) The system as recited in claim 13, wherein the information parameter fields include:

an information parameter identification (ID) for identifying home automation service information among other V5EF information parameters;

a length of information parameter field to show a size of HAS information parameter in octet;

a user port ID field to identify the ADSL terminal, wherein a size of the user port ID field is 4 octets and the user port ID field corresponds to a phone number of a subscriber; and

a status field to show status of port that is identified by the user port ID and operation information, including one or more of calling, disabled, not using, call processing, testing, allocating, or clearing of a time slot for a 64Kbps clear channel.

15. (Currently amended) A home automation communication method using advanced asymmetric digital subscriber line (ADSL), comprising:

providing a home automation service with a home automation communication server;

transmitting and receiving a home automation service control signal and data with home automation devices in wired or wireless communication mode using low rate signals and a home automation service channel module included in an ADSL terminal; and

multiplexing a home automation service control signal and data between the home automation service communication server and the home automation service channel module using a home automation multiplexing module included in an ADSL accessing unit.

16. (Currently amended) The method as recited in claim 15, wherein the transmitting and receiving data step includes:

performing functions of a wireless home network and a wireless home automation interface;

performing functions of a wired home network and a wired home automation interface;

generating data having a [[HAS]] home automation service message format based on message types and information parameters using a home automation service [[(HAS)]] framer connected to a low rate processing unit of an ADSL termination unit;

transferring the data to the low rate processing unit;

extracting a message type and information parameter from data having ~~the received HAS~~ home automation service message format received from the low rate processing unit;

receiving messages and information parameter from the [[HAS]] home automation service framer with a [[HAS]] home automation service agent; performing a home service process with the [[HAS]] home automation service agent; and

transferring home automation service control signal and data to the wireless [[HAS]] home automation service circuit and the wired [[HAS]] home automation service circuit using the [[HAS]] home automation service agent.

17. (Previously Presented) The method as recited in claim 15, wherein the multiplexing step includes:

receiving and transferring low rate data using a low rate frame accessing unit connected to a low rate processing unit of an ADSL termination unit – central (ATU-C);

performing a home automation service procedure with a home automation service processing unit connected to the home automation communication server; and

transmitting/receiving data with the home automation service channel module through the low rate frame accessing unit.

18. (Currently amended) The method as recited in claim 15, wherein the transmitting and receiving data step includes transferring information [[to]] for the home automation service in a home automation protocol message having:

flag fields which are first and last octets for showing start and end of V5 envelope function (V5EF) frame;

V5 data link address fields which are second/third octets and third/forth octets, wherein the second/third octets and third/forth octets are identically copied;

a protocol identifier field which is an eighth octet;

control fields which are sixth and seventh octets;

frame check sequence (FCS) fields in which n-1st and n-2nd octets are generated based on a link access procedure for [[the]] Integrated Services Digital Network (ISDN) D channel (Link Access Protocol Channel-D (LAPD)) protocol standard;

[[HAS]] home automation service reference number fields which are ninth and tenth octets, wherein the [[HAS]] home automation service reference number field is effective until a process of the message is completed;

a message type field for allocating message identification numbers for requesting and responding to control a home automation service, searching home automation data, transferring data, reporting status of service, automatic metering, home radio and home data service; and

information parameter fields for storing parameters for processing messages and data for application service.

19. (Currently Amended) The method as recited in claim 18, wherein the information parameter fields include:

an information parameter identification (ID) for identifying home automation service information among other V5EF information parameters;

a length of information parameter field for showing a size of [[HAS]] home automation service information parameter in octet;

a user port ID field for identifying ADSL terminal, wherein a size of the user port ID field is 4 octets and the user port ID field is corresponding to a phone number of a subscriber; and

a status field for showing status of port that is identified by the user port ID and operation information, e.g., calling, disabled, not using, call processing, testing and allocating/clearing of time slot for 64Kbps clear channel.

a status field for showing status of port that is identified by the user port ID and operation information, e.g., calling, disabled, not using, call processing, testing and allocating/clearing of time slot for 64Kbps clear channel.